

Claims

1. A temperature-sensitive state-changing hydrogel composition, comprising:

- 1 - 10 wt % of branched gelation polymer;
  - 5 0.5 - 5 wt % of electrolyte gelation polymer;
  - 0.5 - 5 wt % of skin-communication enhancer;
  - 1 - 10 wt % of natural biomaterial;
  - 3 - 30 wt % of polyhydric alcohol;
  - 1 - 10 wt % of functional additive; and
  - 10 30 - 93 wt % of water based on a total weight of the composition,
- wherein, hydrogel is transformed into a fluid state at 10 - 50°C.

2. The temperature-sensitive state-changing hydrogel composition as set forth in claim 1, wherein the branched gelation polymer is at least one water soluble polysaccharide polymer selected from the group consisting of galactomannan, glucomannan, guar gum, locust bean gum and pluronic.

3. The temperature-sensitive state-changing hydrogel composition as set forth in claim 1, wherein the electrolyte gelation polymer is at least one polysaccharide electrolyte polymer selected from the group consisting of agar, algin, carrageenan, xanthan and gelan.

4. The temperature-sensitive state-changing hydrogel

composition as set forth in claim 1, wherein the skin-communication enhancer is at least one polysaccharide selected from the group consisting of chitosan, chitosan derivatives, proteoglycans, elastin, collagen, and hyaluronic acid, or  
5 protein.

5. The temperature-sensitive state-changing hydrogel composition as set forth in claim 1, wherein the natural biomaterial is a vegetable, animal, or mineral natural extract extracted from aloe, green tea, ginseng, wood vinegar, pine  
10 needles, ginkgo leaves, propolis, mulberry leaves, or silkworms.

6. The temperature-sensitive state-changing hydrogel composition as set forth in claim 1, wherein the polyhydric alcohol is propylene glycol or glycerine in a form of a water  
15 soluble liquid.

7. The temperature-sensitive state-changing hydrogel composition as set forth in claim 1, wherein the functional additive is an additive capable of providing stability or beauty functionality to the hydrogel, and is methylparaben,  
20 propylparaben, kojic acid,  $\alpha$ -hydroxy acid, imidazolidinylurea, Twin 80 or retinol.

8. A method of producing a hydrogel composition, comprising:

mixing 1 - 10 wt % of branched gelation polymer selected

from the group consisting of galactomannan, glucomannan, guar gum, locust bean gum and pluronic, 0.5 - 5 wt % of electrolyte gelation polymer selected from the group consisting of agar, algin, carrageenan, xanthan and gelan, 1 - 10 wt % of  
5 functional additive selected from the group consisting of chitosan, chitosan derivatives, proteoglycans, elastin, collagen, and hyaluronic acid, and 3 - 30 wt % of polyhydric alcohol, with each other;

adding 30 - 93 wt % of water to the mixture at room  
10 temperature;

heating the resulting mixed solution to 45 - 95°C to produce a gel solution;

adding 1 - 10 wt % of natural biomaterial extracted from aloe, green tea, ginseng, wood vinegar, pine needles, ginkgo  
15 leaves, propolis, mulberry leaves, or silkworms to the gel solution;

adding 0.5 - 5 wt % of a skin-communication enhancer selected from the group consisting of methylparaben, propylparaben, kojic acid,  $\alpha$ -hydroxy acid, and retinol to the  
20 gel solution while maintaining the gel solution at 45 - 95°C; and

cooling the resulting gel solution to room temperature.